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Full Length Research

The Role of Non-Modifiable Risk Factors for Peptic Ulcer Disease in Patients Attending a Tertiary Hospital in Enugu, South East Nigeria

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This research is to determine the role of non-modifiable risk factors associated with peptic ulcer disease in patients attending a tertiary hospital in Enugu, South East Nigeria. A total of 240 patients comprising 120 cases and 120 controls attending the outpatient clinic of the Enugu State University Teaching Hospital, GRA, Enugu were seen within the period February and August 2017. Their age, sex, educational and income levels were taken. Their medical history which centered on knowledge of peptic ulcer disease (PUD), family history of PUD, history of chronic illness and diagnosis of PUD were assessed. The prevalence of these non-modifiable risk factors in the cases and controls were compared. There was no significant difference between the age distribution and sex distribution of cases and controls (P-value= 0.103 and 0.07 respectively). Similarly, there was no significant difference between the educational levels (P-value= 0.683) and the monthly income levels (P-value= 0.490) of cases and controls. Factors such as age and sex were found to be of little or no influence. However, the cases with higher educational level had a higher prevalence of PUD while those with lower monthly income had the same higher prevalence, thus showing that the higher the educational attainment, the lower the monthly income. From the above findings, emphasis should be laid on a policy aimed at massive employment/empowerment of the youths and young adults so as to improve their monthly income and reduce the observed inequality.

KEY WORDS: Enugu State, Non-modifiable risk factors, Peptic ulcer disease, tertiary hospital.

INTRODUCTION

Peptic Ulcer Disease (PUD) is a disorder of the upper gastrointestinal tract. Ulcers occur when the mucosal lining of the GI tract breaks down, resulting in acute or chronic inflammatory response. According to Nutrition Care Manual (2013), ulcers can develop in the esophagus, stomach, duodenum, or other regions of the GI tract; through most of the 20th century, ulcers were thought to be the result of stress and dietary factor (U.S. News Health, 2009). First, treatment included hospitalization, rest and special diets. Later on, treatments focused on the reduction of acidity in the digestive tract, using antacids and proton pump blockers when these became available. However, despite these treatments relieving the symptoms of ulcer and high recurrence remained a major problem. The rate of PUD hospitalizations was

found to be highest in adults > 65 years of age, Caucasians, and males: the prevalence was lower at younger ages. (Hunt and Yuan, 2011). The elderly population often suffers from musculoskeletal and joint disorders, which are commonly treated with NSAIDs. This explains why peptic ulcer bleeding is most common in adults > 65 years of age. Low-dose aspirin is also a cause of drug-induced peptic ulcer bleeding (Thorat and Cuzick, 2015). Aspirin is used for the prevention of cardiovascular incidents (Thorat and Cuzick, 2015). With the continuing rise of coronary and cerebro-vascular diseases, the number of low-dose aspirin users may also increase, leading to more cases of PUD. Age was strongly associated with ulcer incidence, increasing from 38.8 per 10,000 at age 18-24 years to 107.7 per 10,000 at age 75 and older. Therefore, the incidence of ulcers for other factors was age standardized. Lower socio-economic status, as represented by low family income and lower educational attainment, was strongly associated with incidence of ulcers. For example, persons who had not attended high school had 4.7 times the incidence of persons who had attended graduate school. Incidence by family income showed a clear separation at 20,000 U.S dollars, with persons having a lower family income having about twice the incidence of ulcers as persons with a family income greater than 20,000 U.S dollars (Evertiart et al., 1998). *Helicobacter pylori* infection and the use of non-steroidal anti-inflammatory drugs (NSAIDs) are the most well-known causal factors for PUD (Atherton et al., 1995; Hopkins et al., 1996; Wolfe et al., 1999; Yamaoka et al., 2006). Although the prevalence of PUD caused by *H. pylori* has been decreasing because of eradication therapy, the prevalence of PUD induced by NSAIDs or aspirin is increasing because of the worldwide increase in the aging population (Sasaki et al., 2013; Potamitis and Axon 2015; Thorat and Cuzick, 2015), most previous studies on the risk factors of PUD had focused on such things like the involvement of gastric acid and other enzymes of the digestive system which had led to the age-long use of antacids and other drugs that minimize gastric acid secretion in the treatment of PUD. More recently with the discovery of the involvement of *H. Pylori*, studies had focused on this organism as a possible risk factor or causal factor in PUD (Yamaoka et al., 2006). The resultant effect is that little or no attention has been paid on the involvement of the non-modifiable risk factors like Age, Sex, Marital status, Occupation, Educational and Income levels as risk factors in PUD. It is therefore the aim of this study to contribute in filling this gap.

MATERIALS AND METHODS

The study comprised of 240 patients aged 18 years and above (120 of them were being treated for PUD while 120 were being treated for other ailments) attending the outpatient department of the Enugu State university Teaching Hospital GRA Enugu within the period of February 2017 to August 2017. After obtaining permission from the hospital authorities, a questionnaire was issued to each of the patients to ascertain their age, sex, marital status, occupation, income and educational levels as well as their medical history which centered on presence or absence of PUD. The diagnosis of PUD was based on present and past medical histories, family history, drug history, abdominal ultrasound, stool analysis and endoscopy. Those patients who tested positive for *H.pylori* infection were excluded from the study to avoid its role as a confounding factor. Also excluded were those patients who for one reason or the other were not willing to partake in the study.

Statistical Analysis

Data from the questionnaire was analyzed using the statistical package for social sciences (SPSS) software version 11.0. Information was presented in the form of tables, pie charts and bar charts. To compare the differences (If any) between the cases and controls, the Chi-square test was employed.

RESULTS

During the period of this study, a total of 240 patients comprising 120 cases and 120 controls were assessed. Table 1 shows the age distribution of the cases and controls. Age group with the highest number of cases (27.5%) was 24-29 years while those with the lowest number of cases (8.3%) were age 42-47. The controls also had a high number of respondents (30%) from the age group 24-29; this was second to age group 18-23 that had (36.7%) respondents.

Figure 1 shows the total number of males is 122 and 118 as the total number of females, although majority of the cases were female (55%) as against

Table 1. Table Showing Age Distribution of Cases and Controls.

N=240					
Age	**Cases**	**Controls**	**Total**	**X^2**	**p-value**
18-23	28 (23.3%)	44 (36.7%)	72		
24-29	33 (27.5%)	36 (30%	69		
30-35	14 (11.7%)	12 (10%)	26	9.166	0.103
36-41	14 (11.7%)	7 (5.8%)	21		
42-47	10 (8.3%)	4 (3.3%)	14		
>47	21 (17.5%)	17 (14.1)	38		
Total	120 (100%)	120 (100%)	240		

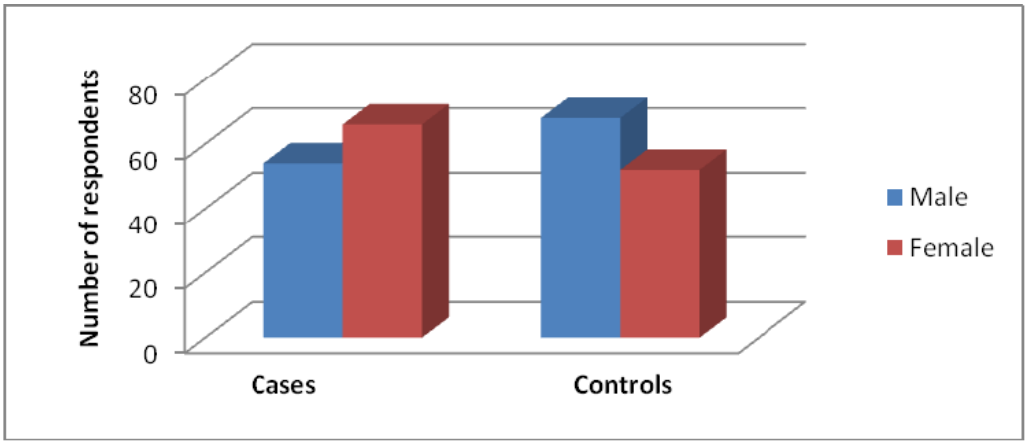

Figure 1. Bar Chart Showing Sex Distribution of Cases and Controls.

45% of male cases. The controls were dominated by males 56.7% while females were 45.5%. The p-value is 0.071. Figure 2 shows that the proportion of cases that had university education as their highest level of Education is 55.8% (67), while 58.3% (70) of controls had university education as their highest level of Education. Only 5.8 % (7) cases and 3.3% (4) controls were uneducated. The **X^2** is 3.109 and **p-value** is 0.683. As shown in Table 2, it can be seen that 26.7% of the cases and 33.7% of controls earned less than 10,000 naira monthly while 7.8% of cases and 10.1% of controls earned over 100,000 naira monthly.

DISCUSSION

In the present study, the age group with the highest number of cases (27.5%) was 24-29 years while those with the lowest number of cases (8.3%) were age 42-47years. (Table 1). This is not in agreement with the findings of Feinstein et al. (2010), who found that the rate of PUD hospitalizations was found to be highest in adults > 65 years of age, Caucasians, and males (Feinstein et al., 2010) and that the prevalence was lower at younger ages (Hunt and Yuan, 2011). These studies also deduced that the elderly population often suffered from musculoskeletal and joint disorders, which are commonly treated with NSAIDs. This explains why peptic ulcer bleeding is most common in adults > 65 years of age. The observed difference may be due to the fact that our PUD patients were those who were not consuming NSAIDs. Within the environment of our study which is the General Outpatient Department of the hospital, doctors take special precaution not to prescribe NSAIDs for any patient who has given a history likely to incriminate PUD. Again, from our study, there was

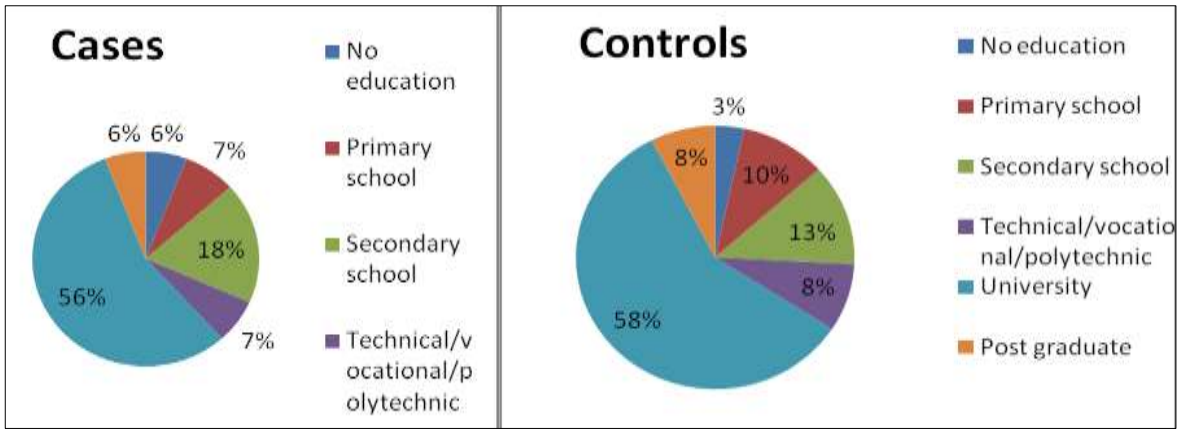

Figure 2. Pie Chart Showing Educational Level of Cases and Controls.

Table 2. Tables Showing the Monthly Income of Cases and Controls.

N=240					
Monthly income	**Cases**	**Controls**	**Total**	**X^2**	**p-value**
<N10,000	24(26.7%)	30(33.7%)	54		
N11,000 - N29,000	24(26.7%)	25(28.1%)	49		
N30,000 - N59,000	21(23.3%)	12(13.5%)	33	3.423	0.490
N60,000 - N99,000	14(15.6%)	13(14.6%)	27		
>N100,000	7(7.8%)	9(10.1%)	16		
Total	90	89	179		

no statistically significant difference (X^2= 9.16 and P-value=0.103) between the age distribution of the cases and controls.

There was no statistically significant difference between the sex distribution of cases and controls (p-value = 0.071). In this study, the total number of males was 122 and the total number of females 118, but we found that the cases were dominated by females (55%) as against 45% who were of males. This is contrary to the reported literature of higher cases of peptic ulcer found in males (Feinstein et al., 2010).

There was no statistically significant difference between the educational level of cases and controls (**X^2** is 3.109 and **p-value** is 0.683). However, our findings show that the proportion of cases that have university education as their highest level of education was 55.8% (67), while 58.3% (70) of controls had university education as their highest level of Education. Only 5.8 % (7) cases and 3.3% (4) controls were uneducated. This finding is in agreement with that of Evertiart et al., (1998) who discovered that lower educational attainment was strongly associated with incident ulcers. For example, persons who had not attended high school had 4.7 times the incidence of persons who had attended graduate school. Again, a greater proportion of controls 33.7% earned less than 10,000 naira monthly while 26.7% of the cases fell within the same range. On the other extreme 7.8% of cases and 10.1% of controls earned over 100,000 naira monthly. This implies that more of the controls fall within the lower socio-economic group than the cases. This finding is at variance with that of Evertiart et al., (1998), who found that incidence by family income showed a clear separation at $20,000, with persons having a lower family income having about twice the incidence of ulcers as persons with a

family income greater than 20,000 US dollars.

CONCLUSION

The present study showed that people who were well educated (higher educational status) had a lower incidence of PUD while those with poorer education had a higher incidence of PUD. On the other hand, more of the controls fall within the lower socio-economic group (as shown by their monthly income) than the cases. The reason for the observed differences is due to the fact that within the environment in which our study was conducted, higher educational attainment does not necessarily mean higher monthly income. In this country, most educated youths and middle-aged population are unemployed and therefore have a lower monthly income than their colleagues who never attended schools but took to trading early in their lives. We therefore advocate a governmental policy which lays emphasis on the provision of employment and other empowerment opportunities of the youths and young adults within this country to close this gap on socio-economic standards.

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